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APPLICATION NO:	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,178	12/04/2001	Charles A. Miller	FORM 2208 (P141)	2874

7812 7590 09/11/2003

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EXAMINER

GLENN, KIMBERLY E

ART UNIT PAPER NUMBER

2817

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,178

Applicant(s)

MILLER, CHARLES A.

Examiner

Kimberly E Glenn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 19-30 is/are allowed.
- 6) ☒ Claim(s) 1-9 16 18 17 is/are rejected.
- 7) ☒ Claim(s) 10-13, 20 and 31-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,4,5, 7, 9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Barbaste et al US Patent 5,235,295

Barbaste et al discloses a equalizer comprising a transmission line 14, a first branch 13 coupled to the transmission line, second branch 13' coupled to the transmission line, a first pair of active devices 11 and 12 connected to the first branch 13, a second pair of active devices 11' and 12' connected to the second branch 13', a first control circuit 15 is connected to the first pair of active devices 11 and 12 and a second control circuit 15' connected to the second pair of active devices 11' and 12'. The transmission line is separated from the branches by air, which is insulating. The active devices 11 and 12 (and 11' and 12') are variable capacitance diodes or PIN diodes, for example, respectively controlled by a voltage or a current. The variable capacitance diodes are connected to ground through capacitors C1 and C2 or inductors L1 and L2. Varying the junction capacitance of a variable capacitance diode shifts (delays) the absorption frequency. The control circuit 15 supplies the active devices 11 and 12 with a control voltage or current. A parasitic capacitance is inherent between the coupled lines. (Figures 1, 3 and 5 and column 1, line 62 through column 2, line 49)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbaste et al US Patent 6,235,295 in view of Li US Patent 6,263,198.

The primary reference, Barbaste et al teaches a equalizer comprising a transmission line 14, a first branch 13 coupled to the transmission line, second branch 13' coupled to the transmission line, a first pair of active devices 11 and 12 connected to the first branch 13, a second pair of active devices 11' and 12' connected to the second branch 13', a first control circuit 15 is connected to the first pair of active devices 11 and 12 and a second control circuit 15' connected to the second pair of active devices 11' and 12'. Refer to the 35 USC 102 rejection for details of Barbaste et al reference.

Thus, Barbaste et al is shown to teach all the limitation of the claims with the exception of the signal path and the first and second coupling lines being embedded in an insulating substrate.

Li teaches coupled lines embedded in a printed circuit board, which is comprised of a dielectric, and insulating layers. (Column 1, lines 34-36 and column 2, lines 30-61)

One of ordinary skill in the art, at the time of the invention would have found it obvious to embedded the coupled lines of Barbaste et al in an insulating substrate as taught by Li. The motivation/suggestion for this modification would be to reduce manufacturing cost:

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barbaste et al US Patent 5,235,295 in view of Moon et al US Patent 6,114,920.

The primary reference, Barbaste et al teaches a equalizer comprising a transmission line 14, a first branch 13 coupled to the transmission line, second branch 13' coupled to the transmission line, a first pair of active devices 11 and 12 connected to the first branch 13, a second pair of active devices 11' and 12' connected to the second branch 13', a first control circuit 15 is connected to the first pair of active devices 11 and 12 and a second control circuit 15' connected to the second pair of active devices 11' and 12'. Refer to the 35 USC 102 rejection for details of Barbaste et al reference.

Barbaste et al is shown to teach all the limitation of the claim with the exception of the first and second voltage source being a digital to analog converter.

Moon et al teaches that capacitance of a varactor can be controlled by a digital to analog converter. (Column 7, lines 31-34)

One skilled in the art, at the time of the invention, would have found it obvious to replace the general control circuit of Barbaste et al with digital to analog converter as taught by Moon et al. The motivation/ suggestion for this modification would be to provide an alternative means of controlling the active devices.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbaste et al US Patent 5,235,295 in view of Koscica et al US Patent 5,640,042 (of record).

The primary reference, Barbaste et al teaches a equalizer comprising a transmission line 14, a first branch 13 coupled to the transmission line, second branch 13' coupled to the transmission line, a first pair of active devices 11 and 12 connected to the first branch 13, a

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second pair of active devices 11' and 12' connected to the second branch 13', a first control circuit 15 is connected to the first pair of active devices 11 and 12 and a second control circuit 15' connected to the second pair of active devices 11' and 12'. Refer to the 35 USC 102 rejection for details of Barbaste et al reference.

Thus, Barbaste et al is shown to teach all the limitations of the claim with the exception of the varactor diodes being thin film varactor diode.

Koscica et al teaches a thin film ferroelectric varactor. (See summary of the invention)

One skilled the art, at the time of the invention, would have found it obvious to replace the variable capacitance diodes of Barbaste et al with the thin film ferroelectric varactor of Koscica et al. The suggestion/motivation for this modification would have been to provide a variable capacitance that is capable of providing maximum tunability without being susceptible to overheating or burnout caused by overbiasing or reverse biasing from an applied voltage.

Allowable Subject Matter

Claims 14 and 19-30 are allowed.

Claims 10-13, 20 and 31-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:
With regards to claims 10-13, the prior art of record does not disclose or fairly teach the anode of the first varactor diode being connected to the first coupling conductor while the cathode of the second varactor diode is connected to the second coupling conductor. With regards to claim 14, the prior art of record does not discloses or fairly teach the first and second control voltages

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being of opposite polarity. With regards to claims 19 and 20, the prior art of record does not discloses or fairly teach a plurality of conductive fingers, each being positioned near the signal conductor and spaced apart from one another such that each conductive finger provides a portion of the first coupling capacitance along a separate portion of the signal conductor. With regards to claims 21-24, the prior art of record does not discloses or fairly teach the first coupling means comprising a conductive second planar surface parallel and proximate to a first area of the first planar surface. With regards to claims 25-37, the prior art of record does not discloses or fairly teach the signal conductor having a circular cross section perpendicular to the direction which it conveys the signal.

Response to Arguments

Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Ruelke US Patent 5,576,669, Tam US Patent 5,006,821, Putnam US Patent 3,400,342, Morse US Patent 5,066,930, Marcoux US Patent 5,448,210, Merenda US Patent 5,942,950, Silverman et al US Patent 4,799,034, Vacanti et al US Patent 4,559,489, Hopfer US Patent 4,288,763 and Nagamori et al US Patent 6,483,398. Nagamori et al teaches a parasitic capacitance between coupled lines.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

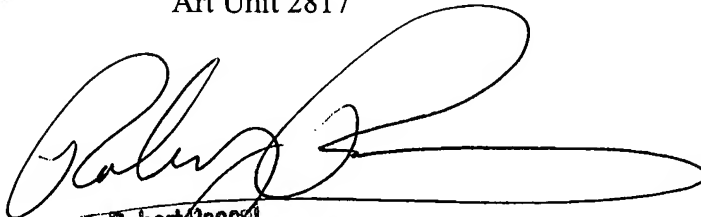
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (703) 306-5942. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Kimberly E Glenn
Examiner
Art Unit 2817

keg


Robert Pascal
Supervisory Patent Examiner
Technology Center 2800